

A scenic landscape photograph of a desert valley. In the foreground, there is a dry, grassy field with scattered shrubs. The middle ground shows a valley floor with more vegetation. In the background, there are several mountain ranges under a clear blue sky. The mountains have varying shades of green and brown, indicating different vegetation and rock formations. The overall scene is bright and sunny.

# **Grants Mining District Five Year Plan Partners Meeting**

**April 26, 2017**



# Legacy of Uranium Mining in Northwestern New Mexico



## Legend

- Uranium Mine
- ▲ Mill Location
- City or Town
- ▭ Pueblo of Acoma
- ▭ Pueblo of Laguna
- ▨ Navajo Nation
- ▭ San Mateo Basin
- ▭ NPL Site
- ▭ County
- Land Ownership
- ▭ BLM
- ▭ Forest Service
- ▭ Tribal Land
- ▭ Private Land
- ▭ State Land

Sources:  
 MMD Legacy Uranium Mine Inventory, 12/2008.  
 EPA Region 6 National Priorities List (NPL), 9/2016.  
 Bureau of Land Management (BLM) Land Ownership.  
 Navajo Land Department 2016. Census Bureau 2010  
 TIGER/Line. ESRI World Shaded Relief.

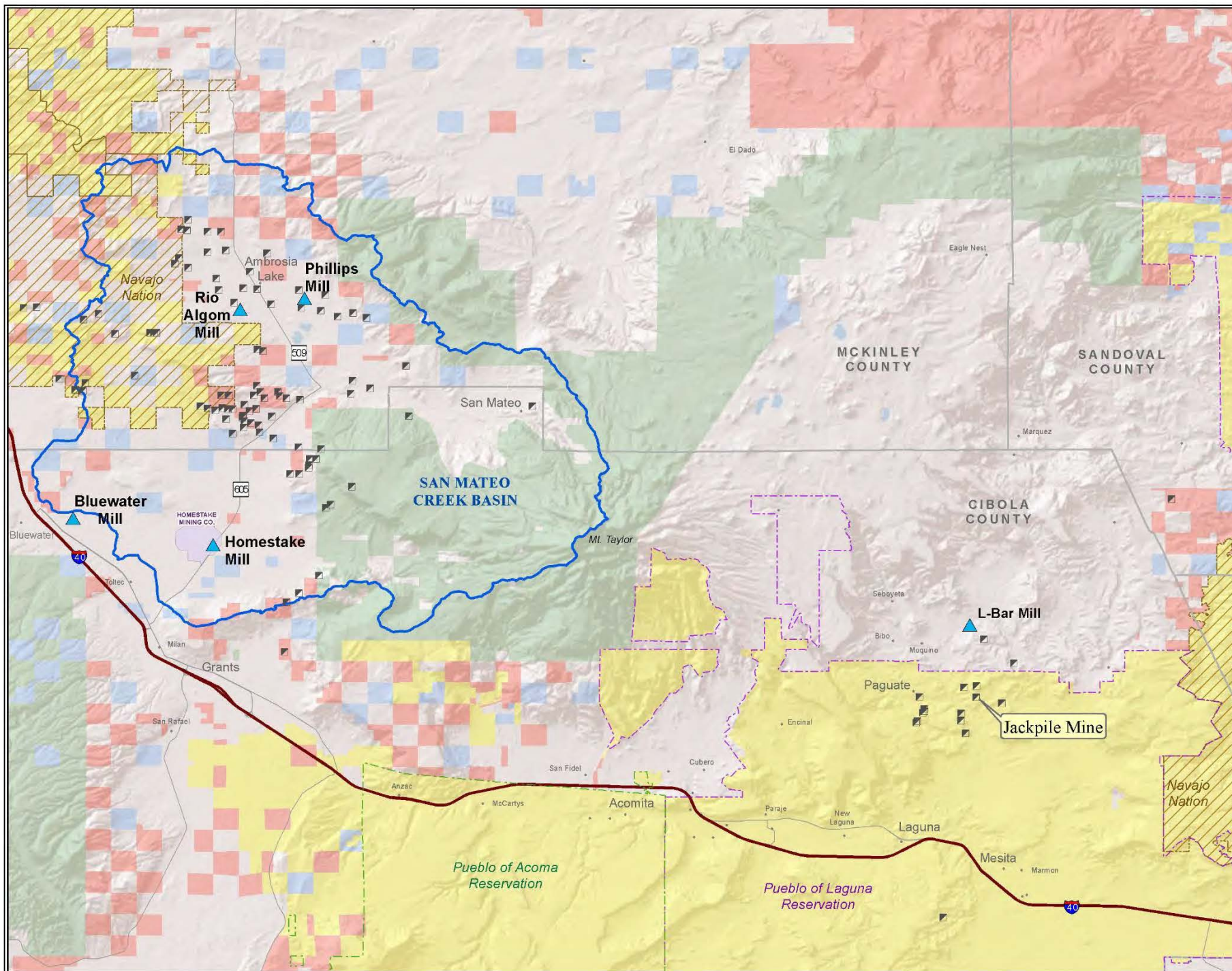
0 2.5 5 7.5 10  
 Miles



EPA Region 6  
 Superfund  
 GIS Support  
 04/25/2017



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# Agenda

- 8:30 Introductions and Opening Remarks
- 9:15 Overview of the Five Year Plan
- 9:30 Report-out on Objective 1: Assess Water Supply Sources for Contamination
- 11:30 Report-out on Objective 2: Assess and Cleanup of Legacy Uranium Mine Sites
- 11:45 Lunch
- 1:00 Report-out on Objective 2: Assess and Cleanup of Legacy Uranium Mine Sites
- 2:00 Report-out on Objective 3: Assess, Cleanup, and Perform Long-Term Management of Former Uranium Milling Sites
- 2:30 Report-out on Objective 4: Assess and Cleanup Contaminated Structures and Properties
- 2:45 Report-out on Objective 5: Communicate and Coordinate with Communities
- 3:30 Review of Action Items and Next Steps
- 4:00 Adjourn

# Overview of the Five Year Plan

*Report to the public the progress made in implementing the 2010 Five-Year Plan and to memorialize priorities and activities for the next five years in the Grants Mining District*

- I. Assess water supply sources for contamination
- II. Assess and cleanup legacy uranium mines
- III. Assess, cleanup, and perform long-term management of former uranium milling sites
- IV. Assess and clean up contaminated structures and properties
- V. Communicate and coordinate with communities

# EPA Region 6 Activities

Grants Mining District

Five Year Plan

Partners Meeting

# EPA Region 6 Activities

- Ambrosia Lake District / Tronox Mines
- Johnny M Mine
- Energy Future Holdings Bankruptcy – Hope, Doris, Faith, and Isabella
- Rio Puerco
- Jackpile-Paguate Mine
- Homestake
- UNC

# Ambrosia Lake District / Tronox Mines

- 12 Surface Expressions
- Funded by Tronox Settlement
- Three Geographical Areas
  - East – National Remedy Review Board in the Fall
  - Central – Removal Assessment ongoing
  - West – Removal Site Assessment Completed

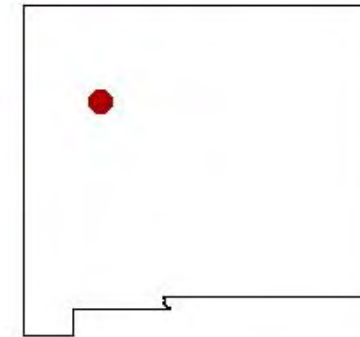






# Johnny M Mine

EPA Region 6



**Relative Area of the  
Johnny M. Mine  
Property**

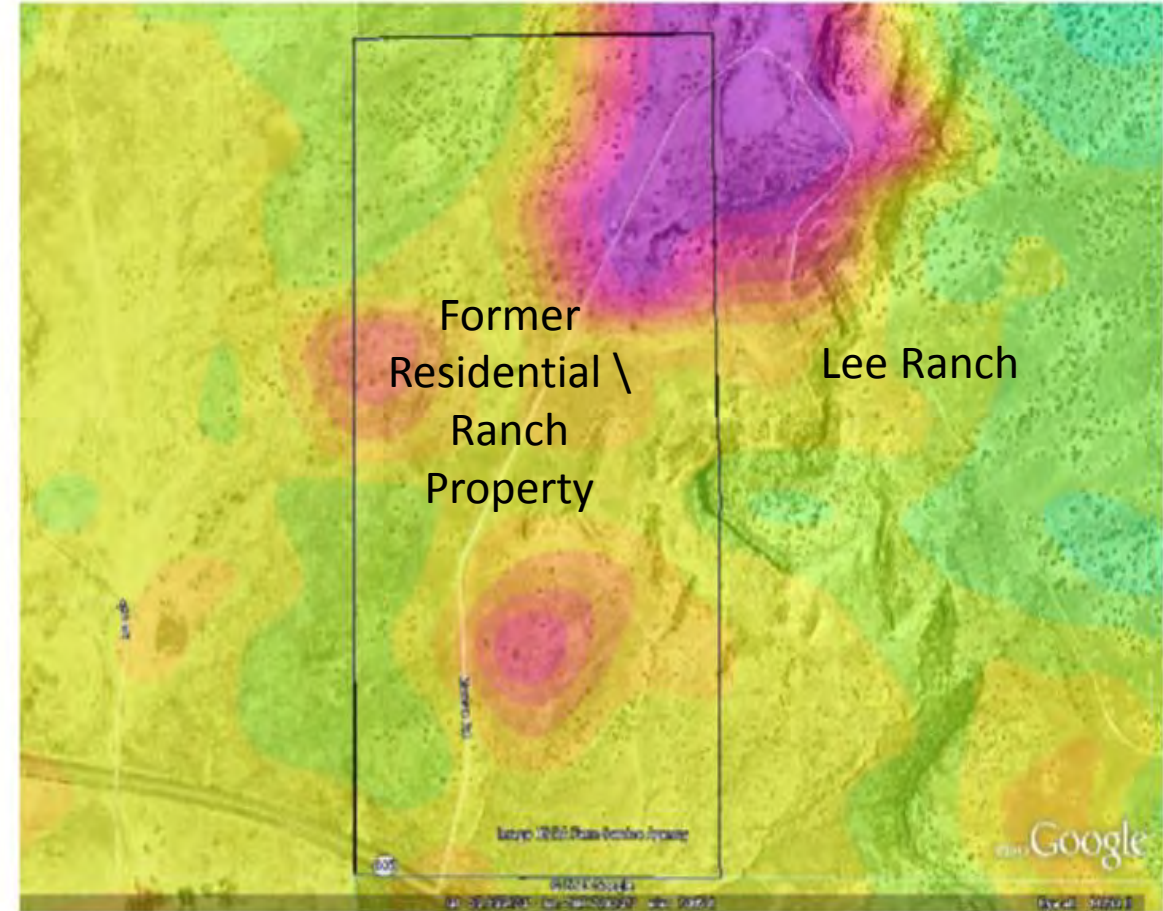


**Legend**

-  NM Roads
-  NM State Boundary
-  Property Boundary

# Johnny M Mine

- Site was identified on 2009 ASPECT overflight as area of concern.
- EPA 6 initiated a removal site evaluation on the Residential\Ranch Property in early 2011.





# Johnny M Mine

- Operated as a wet mine from 1972 – 1982 by Ranchers Exploration (predecessor to Hecla Mining).
- Uranium mill tailings were used to backfill the mine. Process originated under State license and oversight until 1986; transferred to NRC.
- March 2011 - EPA 6 began negotiations with Hecla and notified them of intent to temporarily relocate residents and business.
- April 2011 - residents and business temporarily relocated (6 months + extension).

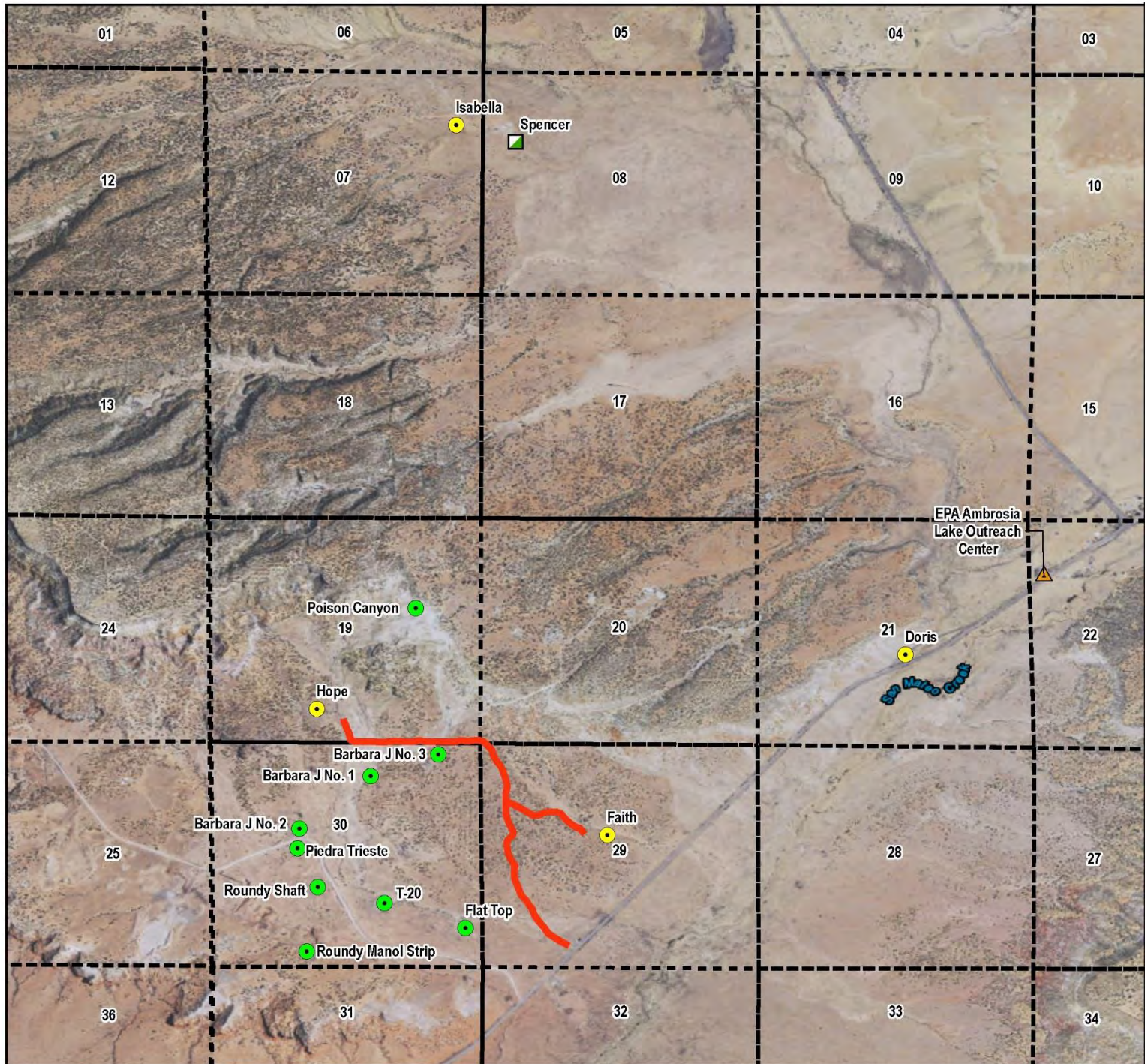
# Johnny M Mine

- February 2012 - Hecla buys out the adjacent Residential \ Ranch Property.
- August 2012 - Hecla signs AOC to conduct an EE/CA for the Johnny M Mine Site.
- June 2015 – EPA accepts Hecla's draft EE/CA
- May (Expected) – EE/CA Published for Public Comment

# Energy Future Holdings Bankruptcy

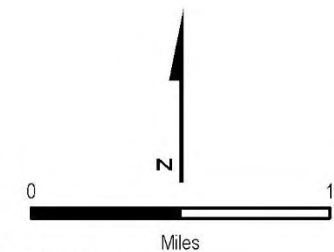
- Isabella, Hope, Faith, Doris Mines
- EFH declared bankruptcy in 2014
- Texas Utilities Fuel Company (TUFECO) MMD Registration Card
- \$5 million recovery
- Removal Assessments started in January 2017





**LEGEND**

- Non-Project Mine Location
- Mine Location
- Tronox Surface Expression
- ▲ EPA Ambrosia Lake Outreach Center
- Road
- - - Section Boundary



TDD: 5/Weston-042-17-001  
CERCLIS ID: NMN000607349  
SOURCE: ESRI ONLINE IMAGERY



**USEPA REGION 6**

**FIGURE 1**

**MINE LOCATION MAP  
MCKINLEY COUNTY, NEW MEXICO**

DATE	PROJECT NO	SCALE
FEB 2017	20406 012.005 1055.01	AS SHOWN



# Rio Puerco Mine

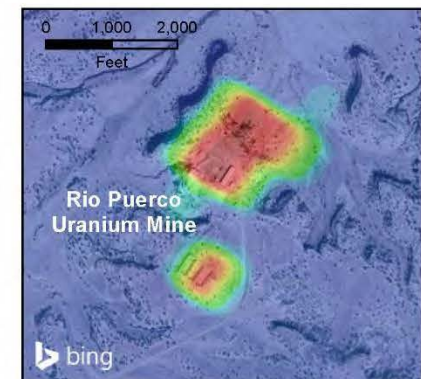
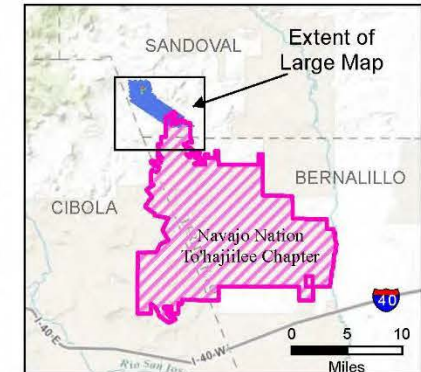
EPA Region 6



# To'hajiilee Chapter of Navajo Nation & ASPECT Net eU Count Rate (cps)

Sandoval, Bernalillo and Cibola Counties, NM

 To'hajiilee Chapter  
 Stream



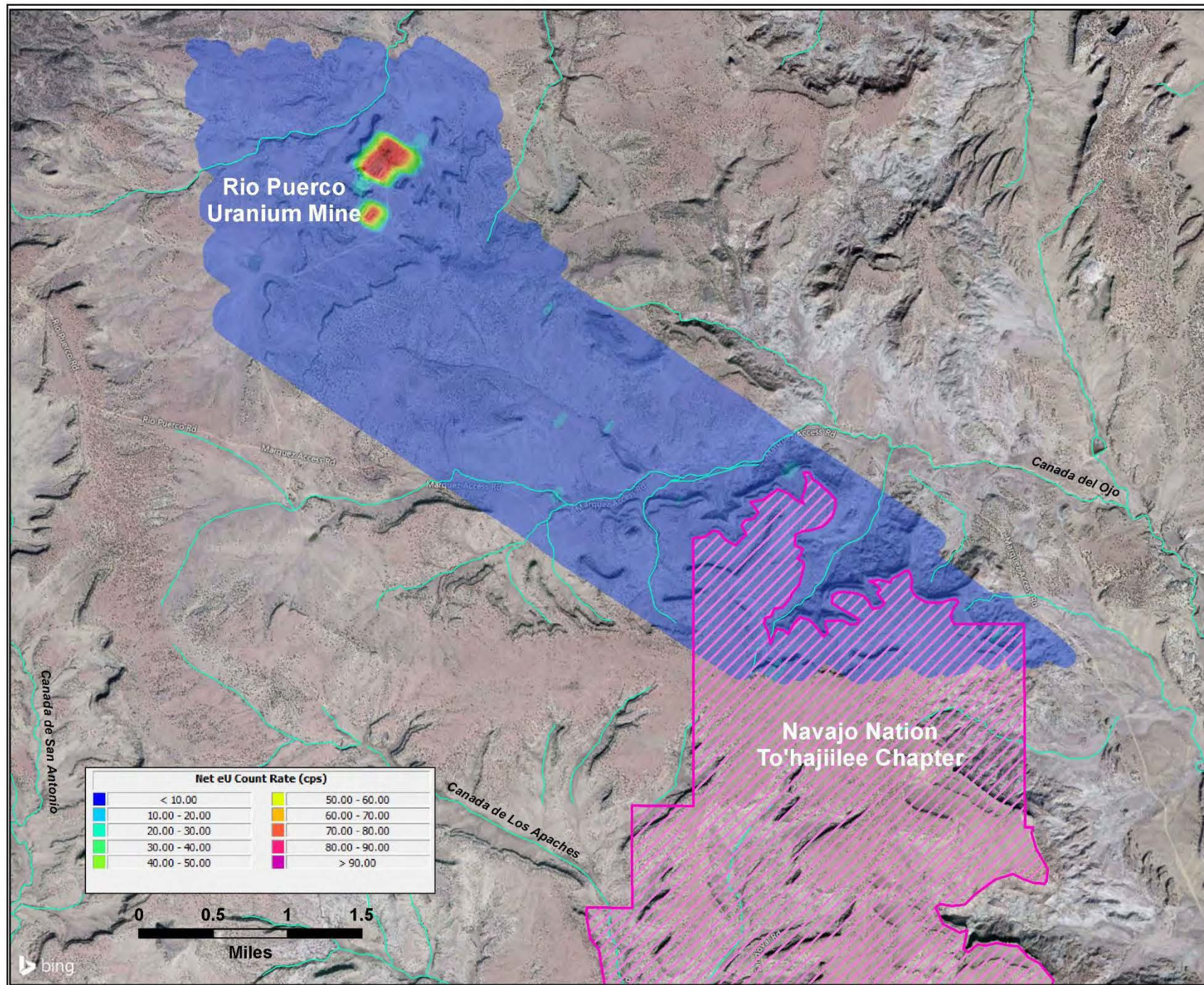
Sources:  
Navajo Nation BIA 2015. Bing Maps.  
EPA R6 Superfund & ASPECT 2016.  
MMD Abandoned Uranium Mines 2008.



EPA Region 6  
Superfund  
GIS Support  
02/22/2017



20170222ML01





# Rio Puerco Mine

- Aerial Assessment Suggests elevated levels of Uranium around the mine shaft and at the retention ponds
- Aerial Assessment suggests no migration of contamination towards To'hajillee Chapter
- BLM is Regulatory Lead



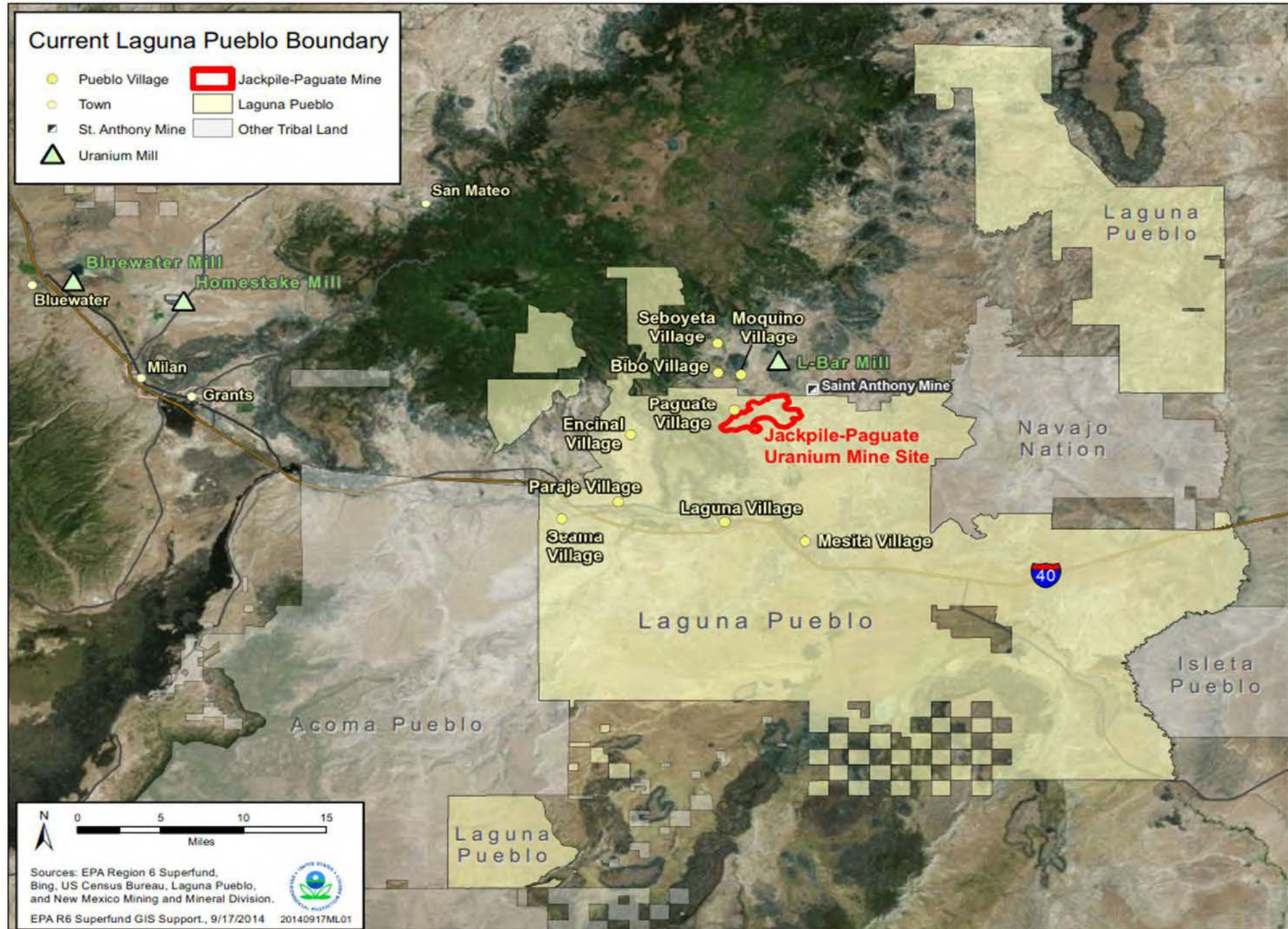
# Jackpile-Paguate Uranium Mine

EPA Region 6



## Current Laguna Pueblo Boundary

- Pueblo Village
- Town
- ▣ St. Anthony Mine
- ▲ Uranium Mill
- ▣ Jackpile-Paguate Mine
- ▣ Laguna Pueblo
- ▣ Other Tribal Land



Sources: EPA Region 6 Superfund, Bing, US Census Bureau, Laguna Pueblo, and New Mexico Mining and Mineral Division.

EPA R6 Superfund GIS Support, 9/17/2014 20140917ML01





# Jackpile-Paguate Uranium Mine

- Operated 1953-1982
- 400 million tons of rocks were moved within the mine area
- 25 million tons of uranium ore were transported to Anaconda's Bluewater Mill.
- The Site was listed December 12, 2013.
- Ongoing negotiations between EPA and ARCO for Remedial Investigation and Feasibility Study

# Homestake Mining Company Superfund Site

EPA Region 6

# SITE MAP



NRC License Boundary

# Site Chronology

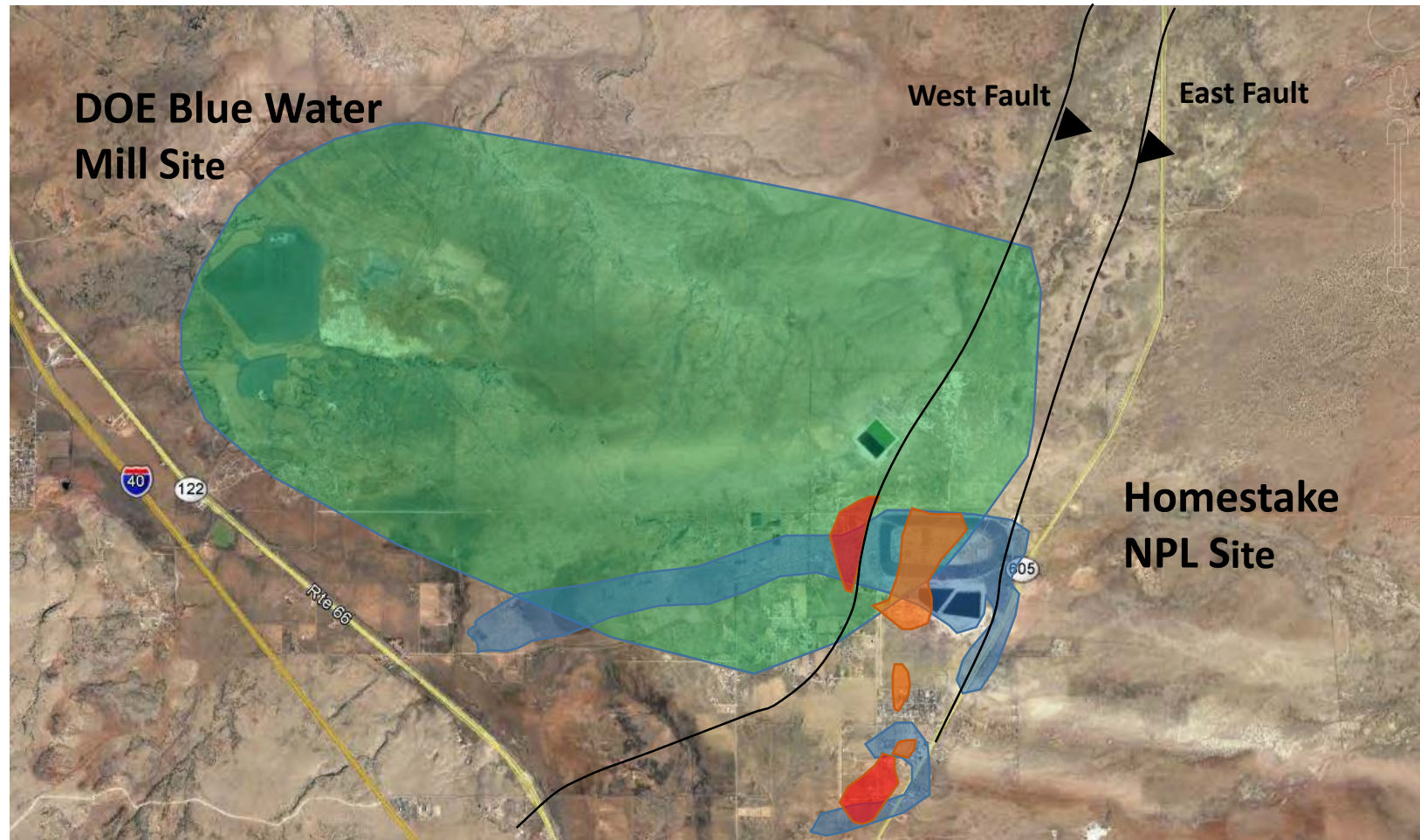
- 1958 to 1990 – Mill operation
- Late 1970s – Contamination observed in private wells
- 1983 – Agreement between HMC and EPA
  - Connect residences to Milan water supply
  - Pay water bills for 10 years
- 1983 – Site listed on NPL
- 1989 – EPA signs No Action ROD for off-site radon (OU3)
  - Ground Water (OU1) and Surface Reclamation (OU2) deferred to NRC
- 2013 – EPA initiates RI/FS (CERCLA Equivalency)



# Site Description

- Tailing Seepage Impacts Multiple Aquifers
- HMC implementing GW Restoration
  - GW Collection and Injection System
  - Expanded RO Treatment Plant
  - Zeolite Treatment System
  - 2 Lined Collection Ponds
  - 3 Lined Evaporation Ponds
- Cleanup Levels represent Background Water Quality
  - Uranium (160 ppb) is 5 times MCL
- EPA/USGS Reassessing Background 2016-2017

# GROUND WATER IMPACTS



## Uranium Impacts

- Alluvium
- Upper Chinle SS
- Middle Chinle SS
- San Andres/Glorietta (SAG)

Modified from DOE 2015, HMC 2015

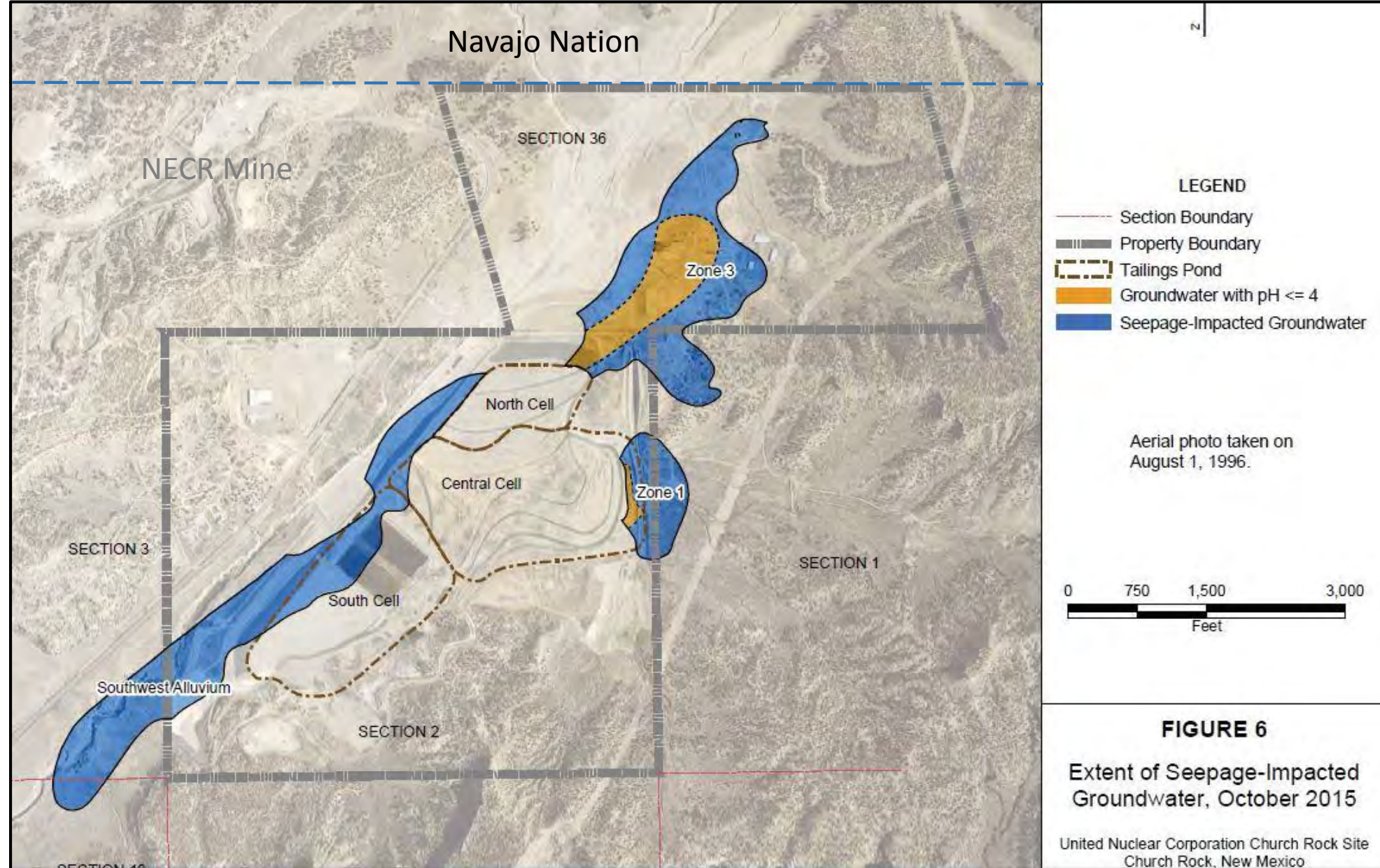
Draft – For Discussion Purposes Only

# United Nuclear Corporation Superfund Site

EPA Region 6



# Site Map





# Uranium Mill and Tailing Disposal Site

- Regulated by NRC and EPA
- Supplemental Feasibility Study ongoing
  - Assess effectiveness of remedy
- Mine water discharge is anthropogenic background
  - Poor water quality
- To be permanent repository for NECR mine waste
  - Repository design ongoing (Region 9 Lead)
  - Requires NRC approval

# Conceptual Extent of Mine Water Discharge - 2026

